

The distribution of the two forms appears curious when it is recalled that specimens from Lonavala, Khandala, Igatpuri and Matheran, are identical and differ from those from Bombay and Mahabaleshwar.

BOMBAY,  
December 28, 1953.

V. K. CHARI,  
Officiating Curator.

### 19. FURTHER COMMENT ON THE MANI-JAL OF THE CHILKA LAKE—A SPECIAL NET FOR BELONIFORM FISHES

Commenting on a note by us published in the Society's *Journal* (Vol. 51, No. 1, pp. 288-289) on the Mani-jal of the Chilka Lake, Mr. M. Peter Devasundaram states [*J.B.N.H.S.*, Vol. 51 (3): p. 761] that Hornell in his account of the fishing methods of the Madras Presidency (*Mad. Fish. Bull.*, Vol. 18, No. 2, p. 73) 'has described the same net under the name 'Kuzhi Valai' used in the Negapatam backwaters' and that Hornell 'has also stated that it is exclusively used for catching the garfish, *Belone strongylurus*'. A careful perusal of the description of Kuzhi Valai by Hornell and of Mani-jal by us would show that the two are different and that Hornell does not state that the Negapatam backwater net is used for catching garfish.

Mani-jal, as we have stated, is a composite net 'made up of a chain of small bags' each distinct from the other, whereas Kuzhi Valai according to Hornell is a 'peculiar modification of the normal Konda Valai, where the bag is no longer continuous but is broken up into as many small pouch-like bags as there are vertical sticks' placed 'across the common mouth of the net'. Though Hornell has not stated that the net is used for catching garpike in Negapatam it could presumably be used with almost the same effect as the Mani-jal of the Chilka Lake or the Kola Valai of the Coromandel Coast.

Hornell, however, says that nets of similar design as Kuzhi Valai but 'much longer and rather deeper in the mouth are used at Kundapur in South Kanara where they are employed to catch garpike (*Belone strongylura*)' and adds that 'so far as I am aware this much-specialised net is not known at any other places in the Presidency'. In the absence of further information about the construction of the net it cannot be asserted that it is the same as the Mani-jal.

The Kola Valai, the Konda Valai, the Kuzhi Valai, the 'garpike net' of Kundapur and the Mani-jal show varying degrees of relationship amongst themselves, but in the present state of our knowledge the origin and evolution of these nets could only be a matter of speculation.

CENTRAL INLAND FISHERIES  
RESEARCH STATION,  
BARRACKPORE,  
October 14, 1953.

S. JONES  
K. H. SUJANSINGHANI

The above was sent to Mr. M. Peter Devasundaram who writes:

'I have no further comments to make on the subject as Dr. Jones and Mr. K. H. Sujarsinghani have admitted that "Kuzhi Valai of Hornell's description could presumably be used with almost the same effect as Mani-jal of the Chilka Lake." It is clear from Hornell's description of Kuzhi Valai that the bag is not continuous but broken up into as many pouch-like small bags as there are vertical sticks crossing the mouth by which he means that the mouth of the net is one and not many.'

[Hornell's sketch appears to confirm that Kuzhi Valai consists of a series of pouches which are, however, said to be 30 in. deep as compared with 15 in. for Mani-jal.—EDS.]

## 20. APOSEMATIC INSECTS AND THEIR FOOD-PLANTS

Mr. McCann's note under this heading (*J.B.N.H.S.*, Vol. 51, p. 752, 1953) rather tends to overlook the essential difference between insects with an incomplete metamorphosis, and with the same food-plant in both the immature and adult stages, and those where the metamorphosis is complete and the food in the two stages entirely different.

Aposematic lepidopterous larvae, feeding on poisonous food-plants, are undoubtedly protected by their poisonous qualities, although I am more inclined to the view that it is through the remnants of food in the intestinal tracts rather than an actual absorption by the tissues. Poulton records an instance where a procryptic larva feeding on Ivy was rejected by birds, but accepted readily when transferred to a non-poisonous food-plant. I have not got the reference with me but, from memory, the larva was *Biston betularia* L., the birds domestic fowls.

During the pupal stage of Lepidoptera there is an almost complete break-down of the larval substance and a rebuilding into the adult. Pigments that were present in the larva disappear and new pigments are developed, and I think it highly probable that any poisonous constituents derived from the larval food-plant would do the same. So far as I know, there is no known larval mutant that is connected with an imaginal one. Thus the green and brown forms of Sphingid larvae both produce the same form of imago. There is an English Geometer with two larval forms with the fat and blood of different colours, but the imago from both is the same. I have recently discovered an African Lymantriid (*Dasychira georgiana* Fawc.) in which in addition to a dimorphic larva, there is also a sex-controlled dominant in the female larva; the larvae either being black or green, with the female larvae also either having or lacking an orange-red lateral stripe, which never appears in the male larva. All larval forms produce the same imago.

The Pierid, *Catopsilia florella* F., has two larval forms that appear to be directly connected with pigments derived from the food. When feeding on the leaves of Cassia they are green, when feeding on the yellow flowers they are yellow, but both forms of larva turn to the same clear, greasy-looking green when preparing to pupate and both produce the same green pupa. Here, then, is a case where the larval pigment does not persist in the pupal stage even.